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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,827	06/07/2007	Jorg Habetha	DE030389	7357
24737 7590 09/14/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
ELLIOTT IV, BENJAMIN H				
ART UNIT		PAPER NUMBER		
2416				
MAIL DATE		DELIVERY MODE		
09/14/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/595,827

Applicant(s)

HABETHA ET AL.

Examiner

BENJAMIN ELLIOTT

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-18 have been examined and are pending. In the reply to the Office action mailed 3/16/2009, Claims 1 and 3-18 have been amended. Claim 2 has been canceled.

Claim Rejections - 35 USC § 112

2. With regards to the rejection of claims 4, 14, and 16 under 35 U.S.C. 112, second paragraph mailed 3/16/2009, Applicant has amended the claims in such a manner to overcome said rejection. Therefore, the rejection is withdrawn.

Claim Rejections - 35 USC § 101

3. With regards to the rejection of claim 16 under 35 U.S.C. 101 mailed 3/16/2009, Applicant has amended the claim in such a manner to overcome said rejection. Therefore, the rejection is withdrawn.

Response to Arguments

4. Applicant's arguments with respect to claims 1 and 3-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by United States Patent 7,310,670 B1 to Walbeck et al (hereinafter "Walbeck").

Regarding Claim 1, Walbeck discloses a method for accessing a medium by a multi-channel device (Walbeck: Col. 22, lines 10-16 and Figure 20), in which the medium comprises a transmission system having at least two channels (Walbeck: Figure 20), the method comprising: transmitting a message including a preamble, a header (PR) and a succeeding control or data section (Walbeck: Col. 22, lines 10-14 and Figure 11), and repeating the transmission of the preamble and header (PR) of the message in parallel on all channels (Walbeck: Col. 6, lines 1-9. The DACK packet is duplicated (repeated) across many channels. Also see Col. 42, lines 54-60 in correlation with the parallel transmission lines of Figure 20.).

Regarding Claim 3, Walbeck discloses the method of claim 1, wherein the messages to be transmitted are of a request-to-send (RTS), clear-to-send (CTS), acknowledgement (ACK) or data (DATA) type (Walbeck: Col. 6, lines 1-9. The DACK packet is duplicated (repeated) across many channels.).

Regarding Claim 17, Walbeck discloses a multi-channel device for accessing a medium (Walbeck: Col. 2, lines 62-67, Figure 20, and Col. 3, lines 26-30), the medium comprises a transmission system having at least two channels (Walbeck: Figure 20), the multi-channel device performing the method of claim 1 for accessing the medium (See rejection, Claim 1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

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Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of United States Patent 7,075,890 B2 to Ozer et al (hereinafter "Ozer").

Regarding Claim 4, Walbeck discloses **the method of claim 1, wherein the method further comprises repeating information belonging to the MAC protocol are repeated on all the channels** (Walbeck: Col. 22, lines 36-37. The DACK contains a MAC header.), but does not explicitly disclose the multi-channel device operating under a wireless standard.

Ozer discloses a multi-channel device operating under a medium access control protocol (MAC) in a wireless ad-hoc network (Ozer: Col. 1, lines 13-19). Ozer further discloses **wherein the multi-channel device operates to standard IEEE 802.11, and a medium access control (MAC) protocol** (Ozer: Col. 1, lines 13-19 and Col. 2, lines 21 -24. IEEE 802.11 MAC is the wireless network standard following the MAC protocols.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Walbeck to include wireless communications. This benefits the method by admission of cellular networks which include wireless, mobile terminals, and to facilitate fairness and service

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differentiation with the use of RTS/CTS messaging (Ozer: Abstract) and ACK messaging (Ozer: Col. 4, lines 8-13).

Regarding Claim 18, Walbeck discloses the multi-channel device of claim 17 and the method of claim 1, but is silent on the network being wireless.

Ozer discloses a multi-channel device operating under a medium access control protocol (MAC) in a wireless ad-hoc network (Ozer: Col. 1, lines 13-19). Ozer further discloses **wherein the multi-channel device operates to standard IEEE 802.11, and a medium access control (MAC) protocol** (Ozer: Col. 1, lines 13-19 and Col. 2, lines 21 -24. IEEE 802.11 MAC is the wireless network standard following the MAC protocols.).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Walbeck to include wireless communications. This benefits the method by admission of cellular networks which include wireless, mobile terminals, and to facilitate fairness and service differentiation with the use of RTS/CTS messaging (Ozer: Abstract) and ACK messaging (Ozer: Col. 4, lines 8-13).

11. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,016,676 B2 to Walke et al. (hereinafter "Walke").

Regarding Claim 5, Walbeck discloses **a method as claimed in claim 1**, but is silent on wireless transmissions and setting the NAV according to CTS/RTS/ACK messages.

However, Walke discloses **wherein the access to the medium takes place under standard IEEE 802.11** (Walke: Col. 2, lines 11-13 and lines 40-42). Walke further discloses **the method further comprising transmitting RTS, CTS and ACK control frames on all channels, and setting network allocation vectors (NAVs), by single channel devices, based on information in the RTS/CTS data packets** (Walke: Figure 2; Col. 1, lines 43-62. The RTS packet is sent and waits for a CTS packet. All other stations in the coverage area set their NAV and don't transmit until an ACK is sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to incorporate monitoring by way of NAVs as taught by Walke to support self-organizing ad-hoc networks and allow support of multimedia applications (Walke: Col. 1, lines 49-53).

12. Claims 6, 7, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 4,797,879 to Habbab et al. (hereinafter "Habbab").

Regarding Claim 6, Walbeck discloses **a method for accessing a medium by a multi- channel device** (Walbeck: Col. 22, lines 10-16 and Figure 20), **in which the medium comprises a transmission system having at least two channels that the multi-channel device intends to call upon for transmission** (Walbeck: Figure 20) **in which a message to be transmitted comprises a preamble, a header (PR) and a succeeding control or data**

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section (Walbeck: Col. 22, lines 10-14 and Figure 11) **wherein the preamble and header (PR) of the message are repeated in parallel on all the channels**

(Walbeck: Col. 6, lines 1-9. The DACK packet is duplicated (repeated) across many channels. Also see Col. 42, lines 54-60 in correlation with the parallel transmission lines of Figure 20.), **the method comprising:**

scanning by the multi-channel device of all the channels to be called upon for transmission (Walbeck: Col. 43, lines 11-24. All channels have assigned to them fragments of packets for transmission. First, all good channels (channels that do not lose fragments) are assigned, and then bad channels (channels wherein fragments are lost) are assigned fragments until all channels are being used. This step of assigning fragments to channels correlates to scanning available channels.), **finding that a single one of these channels is idle or that a back-off by the device itself is underway on this channel** (Walbeck: Figure 6b; Col. 18, lines 4-8. A transmit status is examined to be "ready" or "idle".), **further scanning of the other channels to be called upon and blocking or reserving thereof on finding that the channel concerned is idle or that a backoff is underway thereon** (Walbeck: Figure 6b shows the flow diagram looping if the transmission is idle. Figure 7 shows the steps of "polling the nodes for entry into the medium.).

Walbeck is silent on blocking these channels (idle or back-off).

Habbab discloses a multi-channel device (Habbab: Col. 2, lines 1-6) capable of **blocking of this channel to other devices by the multi-channel device** (Habbab: Col. 5, lines 5-9. The transceiver uses CSMA protocol to sense

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channels that are idle. The channel is blocked or jammed to ensure that the data channel is reserved.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include blocking idle channels as taught by Habbab to achieve high-speed data rates in local area networks (Habbab: Col. 1, lines 64-67).

Regarding Claim 7, Walbeck in view of Habbab discloses the method of claim 6, further comprising:

blocking of the channel by the multi-channel device and the receiving device, each of which emits a reserving message (Habbab: Col. 5, lines 16-34. Upon receiving notification that a channel is idle both the transceiver and another transceiver (receiver at the reception end of a transmission) send a jamming signal.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include blocking idle channels as taught by Habbab to achieve high-speed data rates in local area networks (Habbab: Col. 1, lines 64-67).

Regarding Claim 9, Walbeck in view of Habbab discloses the method of claim 7, further comprising transmitting with channel grouping, by the multi-channel device, on all channels that it has previously blocked (Habbab: Figures 1 and 5; Col. 5, lines 9-16. After determining that a channel is idle, and then waiting for a specific time period related to the transmission of a control packet, data packets can then be sent. Figure 1 shows multiple

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transceivers of the invention allowing for parallel channels to transmit a packet as seen in Figure 5.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include unblocking channels for transmission as taught by Habbab to alleviate interfacing problems by providing a multi-channel system with a set of parallel channels (Habbab: WDM (wavelength division multiplexing); Col. 2, lines 1-3), and provide protocols to provide for high data rates (Habbab: Col. 1, lines 64-67).

Regarding Claim 10, Walbeck discloses **the method of claim 6, blocking the channel by starting the transmission by the multi-channel station on the single channel, wherein the transmission can be made with or without an RTS-CTS mechanism** (Walbeck: Figure 23; Col. 38, lines 60-62. The single channel receiver receives transmissions through only one of the channels of the multi-channel medium.).

Walbeck is silent on blocking these channels (idle or back-off).

Habbab discloses a multi-channel device (Habbab: Col. 2, lines 1-6) capable of blocking of this channel to other devices by the multi-channel device (Habbab: Col. 5, lines 5-9. The transceiver uses CSMA protocol to sense channels that are idle. The channel is blocked or jammed to ensure that the data channel is reserved.).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include

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blocking idle channels as taught by Habbab to achieve high-speed data rates in local area networks (Habbab: Col. 1, lines 64-67).

13. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Habbab and further in view of Walke.

Regarding Claim 8, Walbeck discloses sending DACK messages, but is silent on transmitting RTS or CTS messages. Habbab discloses the use of CSMA, which utilizes RTS and CTS, but is silent on having other devices setting their NAVs.

Walke discloses **the method of claim 7, wherein the reserving message is implemented in the form of RTS and CTS frames, the method further comprising:**
transmitting an RTS frame on the free channel by the multi- channel device, so that devices in the area surrounding the multi- channel device that is transmitting will set their NAVs, and
transmitting a CTS frame on the free channel by the receiving device, so that stations in the area surrounding the receiving station will set their NAVs (Walke: Figure 2; Col. 1, lines 43-62. The RTS packet is sent and waits for a CTS packet. All other stations in the coverage area set their NAV and don't transmit until an ACK is sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck and Habbab to incorporate monitoring by way of NAVs as taught by Walke to support self-

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organizing ad-hoc networks and allow support of multimedia applications (Walke: Col. 1, lines 49-53).

15. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,415,046 B2 to Beckman et al. (hereinafter "Beckman").

Regarding Claim 16, Walbeck discloses **the method of claim 1**, but is silent on the transmission system using UMTS (Universal Mobile Telecommunication System).

However, Beckman discloses **employing the Standard Universal Mobile Telecommunication System (UMTS)** (Beckman: Col. 9, lines 61-63. Data is transmitted through channels over an air interface using UMTS.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include transmitting information based on UMTS as taught by Beckman to easily establish a point-to-point connection between layer 1 and layer 2 devices, as UMTS utilizes the air interface comprising layer 1 and layer 2 (of the OSI model). This recognizes the use of UMTS along side the medium access control (MAC) of the claimed invention (Beckman: Col. 1, lines 30-58).

15. Claims 11, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck in view of US Patent 7,289,529 B2 to Sherman (hereinafter "Sherman").

Regarding Claim 11, Walbeck discloses **a method accessing a medium by a multi-channel device, the medium comprises a transmission system having at least two channels that the multi-channel device intends to call upon for transmission** (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver.), **and a message to be transmitted comprising a preamble, a header (PR) and a succeeding control or data section** (Walbeck: Col. 22, lines 10-14 and Figure 11), **the method comprising:**

repeating the preamble and header (PR) of the message in parallel on all channels (Walbeck: Col. 6, lines 1-9. The DACK packet is duplicated (repeated) across many channels. Also see Col. 42, lines 54-60 in correlation with the parallel transmission lines of Figure 20.).

Walbeck is silent on a third device blocking the channels.

However, Sherman discloses **reserving or blocking by a third device independent of the transmitter and receiver the channels in a channel group for the multi-channel device that intends to transmit** (Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol).).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize

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performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

Regarding Claim 12, Walbeck in view of Sherman discloses **the method of claim 11, further comprising: coordinating, by the third device, access to the medium for a plurality of channels** (Sherman: Col. 4, lines 43-44. The PCF (point coordination function) makes use of PIFS (PCF interframe space) to seize and maintain control of the medium.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

Regarding Claim 14, Walbeck in view of Sherman discloses **the method of claim 11, wherein the third device is the hybrid coordinator or point coordinator** (Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol).) **the method performing the medium access under standard IEEE 802.11** (Sherman: Abstract and Col. 4, lines 3-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck to include a third device for reserving channels as taught by Sherman to optimize

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performance by the hybrid coordinator for efficient use of the medium (Sherman: Col. 2, lines 14-20).

16. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Sherman, and further in view of Habbab.

Regarding Claim 13, Walbeck in view of Sherman discloses **the method of in claim 11, wherein in the event of individual channels in the channel group not becoming free simultaneously, the third device causes, alternatively**, (Walbeck: Figure 20 shows a multi-channel medium connecting a multi-channel transmitter to a multi-channel receiver. Sherman: Col. 6, lines 21-40. A point coordination function or hybrid coordination function work as part of the reserve protocol for contending transmissions to gain access to the wireless medium (by way of the CSMA protocol), but is silent on **blocking one channel or individual channels until such time as all the channels in the channel group have become free, or Assigning a channel that has become free immediately to the multi-channel device that intends to transmit.**

However, Habbab discloses **a channel that has become free to be assigned immediately to the multi-channel device that wishes to transmit** (Habbab: Figures 1 and 5; Col. 5, lines 9-16. After determining that a channel is idle, and then waiting for a specific time period related to the transmission of a control packet, data packets can then be sent.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Walbeck and Sherman to include in the third device the option to immediately assign a channel for transmission as taught by Habbab to alleviate interfacing problems by providing a multi-channel system with a set of parallel channels (Habbab: WDM (wavelength division multiplexing); Col. 2, lines 1-3), and provide protocols to provide for high data rates (Habbab: Col. 1, lines 64-67).

17. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walbeck and Sherman in view of United States Patent Application Publication 2005/0111402 A1 to Sawada et al (hereinafter "Sawada").

Regarding Claim 15, Walbeck in view of Sherman discloses **the method of claim 14 further comprising:**
transmitting by the point coordinator or hybrid coordinator, beacons in parallel on all the channels (Sherman: Col. 4, lines 57-59).

Walke in view of Sherman does not explicitly recite the beacons are sent in parallel.

Sawada discloses sending the beacons in parallel over a plurality of channels (Sawada:[0009]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Walbeck and Sherman to include sending beacons in parallel as taught by Sawada. This benefits the method by

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allowing registration and authentication of two or more communication stations at the same time in a master/slave environment (Sawada: [0010]).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN ELLIOTT whose telephone number is (571)270-7163. The examiner can normally be reached on Monday thru Friday, 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung Moe can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2416

BENJAMIN ELLIOTT
Examiner
Art Unit 2416